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Applying cultural values to encourage disaster preparedness: Lessons from a low-hazard country

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ABSTRACT

We present results from the CARISMAND project,[1] which investigated the relationships between risk perception and cultural factors in man-made and natural disasters. The present study focused on attitudes, feelings and perceptions in a"low-risk" country, the island of Malta. This research location was chosen due to its unique geographical and geo-political position. In combination with the low level of prevalent disaster risk, it can be seen to be particularly suitable for elucidating cultural factors which are strong enough to generate behavioural change in such an environment and allow further insight into the relationship between risk perception, culture and behaviour. The data were collected during a Citizen Summit (held in Malta in 2016) which combined quantitative inquiry, for measuring cognitive and emotional responses related to risk perception, with qualitative methods that follow the "fluid" character of culture. We found that disaster risk perception showed only weak links to preparedness intentions, supporting other published results. Focus group discussions revealed several cultural traits, most prominently strong family values and social cohesion, which was also supported by the quantitative data. Furthermore, we found evidence of how personal values are transformed into cultural values, and how these can work in favour, or against, a motivation to prepare for disasters. Our results suggest that integrating shared local values, shared everyday experiences, and shared local memories in risk communication strategies and behavioural guidelines may be effective in encouraging citizens' disaster preparedness.

1. Introduction

The analyses and results in this study are based on data collected during a Citizen Summit held in Malta in 2016 as part of the CARISMAND project, which investigates the role of cultural factors in disaster preparedness, response and recovery from a variety of perspectives. This one-day event combined public information with feedback gathering through different methods of data collection, with the aim of exploring citizens' attitudes, feelings and perceptions towards disaster risks, whilst identifying cultural factors in disaster preparation, response and recovery. Culture, for the purpose of this study, is understood as a set of *"beliefs, attitudes, values and their associated behaviours that are shared by a significant number of people in hazard-affected places"* [25]. Based on the current state of research regarding relationships between disaster risk perception, culture and (disaster-related) behaviour, we will argue that investigating this topic in a location like Malta, that is characterised by a low level of natural hazards, reveals particular insight into those cultural effects which can motivate disaster preparedness activities, as they are less moderated by actual or perceived risks. Further, we will argue that a mixed-method approach, which combines quantitative inquiry for measuring cognitive and emotional responses related to risk perception with qualitative methods that follow the "fluid" character of culture, is best suited to elicit the connections, or disconnections, between the various factors.

2. Disaster, culture and behaviour

Culture and risk perception have long been recognised as intrinsically intertwined (see, e.g., [9,33,34]), and there is a considerable number of recent studies which explore possible links between culture and disaster risk perception, disaster management and disaster risk communication. Methodological approaches range from quantitative and experimental research to qualitative case studies in cross-cultural and social psychology, sociology, and social anthropology (see, e.g.,

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[5,3,7,40,44]). However, definitions of culture in these studies rarely coincide, and they are more often linked to nationality, ethnicity, gender, socio-economic factors and geography than to cultural aspects. For example, both living in a disaster-prone area and previous experience of disasters have been found to affect disaster risk perception, but they do not directly translate into an increase of perceived future risks [22,28]. Women [24,30], ethnic minorities [36] and people with a lower socio-economic status [19] have shown higher disaster risk perception than other groups of the population, but there is little evidence for a significant link between risk perception and adaptive behaviours.

However, recent research suggests that cultural factors may provide the "missing link", as they affect both risk perception and behavioural adaptation [2], albeit revealing effects which, at first sight, appear contradictory. For example, high levels of trust in authorities have been found to reduce risk perception but, in turn, also to reduce engagement in preparedness activities [12,21,42,45]. On the other hand, distrust of authorities – rooted in citizens' perceptions that the respective civil protection systems are not working effectively – has been linked to fatalistic attitudes which also hamper disaster preparedness. Fatalistic attitudes related to explanations of natural hazards, particularly earthquakes, have been found to be a major obstacle to disaster risk prevention in some Muslim communities, e.g. by citizens disregarding building standards and community education programs [37]. At the same time, though, Chester et al. [11] revealed in their research what they called "parallel practices": Citizens in religious South Italy (Mount Etna region) were taking part in activities that are believed to help miracles take place but, simultaneously, they engaged in protective measures such as evacuation. These results demonstrate that cultural factors such as religious beliefs, worldviews, or trust in authorities do affect disaster-related behaviour, but the respective effects may differ substantially depending on the specific local context.

Generally, Islam and Walkerden [27] argue that so-called linking networks, i.e., vertical relationships that connect citizens to organisations which influence conditions – with trust or distrust of authorities being seen as an emotional expression of such relationship – do not elicit adaptive behaviour. Whereas, bonding and bridging networks[2] contribute to disaster resilience and recovery, as they foster information-sharing and positive normative behaviour [29]. This points to the important role of social cohesion as a cultural factor, which has been found to have a positive impact on the respective community's disaster resilience [38] by promoting normative-supportive behaviour, e.g., helping each other in home improvements, serving thus as a form of "moral economy" [16] that offers both extrinsic and intrinsic rewards.

There are a number of studies in the Southern European / Mediterranean area – a region with traditionally strong family values and community cohesion – which confirm these results; e.g. Lara et al. [32] in their study in the Costa Brava region show that perceived vulnerability alone does not strongly promote disaster preparedness, whereas community[3] involvement does. However, other studies in this region rarely explore the relationships between culture and risk behaviour but rather focus on the (missing) link between knowledge, risk perception and behaviour: Carlino et al. [10] in their quantitative study of volcanic risk perception in the Vesuvius region demonstrated that the participating students had an accurate perception of the level of volcanic risk, but they also found high levels of fear and vulnerability amongst these students, combined with insufficient knowledge about emergency procedures in case of an eruption. A similar study, focusing on the seismic risk perception of school children in two Southern Mediterranean locations – Calabria and Malta – revealed a large gap amongst these children between high risk awareness and poor behavioural knowledge [15].

Whilst the latter research does not provide any novel conceptual insights, it follows an approach that is worth noting: the specific comparison between two locations which, despite their geographical proximity, are exposed to very different levels of risk – Calabria, a high seismic hazard region, and Malta, a country with a low seismic risk which has also been ranked in the World Risk Report 2016 as the country with the second-lowest general disaster risk in the world and the lowest in Europe. This may be the reason why, with the exception of climate change and health risk perception [1,13], no other research into disaster preparedness or disaster behaviour has yet been conducted in Malta from a social sciences perspective, and it may even be questioned why this should be done. However, as documented in previous studies, disaster risk perception itself does not automatically increase, or decrease, disaster preparedness. Instead, is has been recognised that cultural factors have a strong influence on people's actual behaviour before, during and after such events. Researching these specific cultural effects and inter-relationships in Malta as a "low-risk" country is, therefore, facing the specific challenge of an expected generally low disaster risk perception across most groups of the population. However, this situation also provides the opportunity to elicit responses which elucidate those cultural factors that may, actually, be strong enough to generate behavioural change in such an environment. Additionally, Malta is located at the margins of Europe and, therefore, more exposed to geo-political changes. In such circumstances, anthropological research has found people using values and traditions as "stable elements" to accommodate insecurity [35]. From a methodological point of view, this makes Malta particularly suitable for research into the connections between disaster risk perception, behaviour and culture.

3. Aims of the research

3.1. Citizen summits in disaster research

Citizen Summits were, originally, designed in the political sector to build upon the traditional model of public hearings, but using small discussion groups and interactive computer technologies to place predefined discussion topics as well as real-time questions to these groups and display their discussion results and individual votes on large screens to all summit participants. One of the first applications of his model, intended to allow "ordinary" citizens rather than only a specialist elite access to the policy-making process, was in 2003, when 2800 residents of Washington DC in what was called an "Electronic town meeting" discussed three city-related issues: better education, improving neighbourhood safety, and creating employment opportunities. The opinions expressed by these citizens were used to develop a "Citywide Strategic Plan" [23]. Since then, this concept has been taken up by a variety of governmental institutions as well as NGOs to target specific local challenges but, more often, to encourage the public discussion of broader themes such as the future of Europe, climate change, or gender issues. For example, in the past ten years the Danish Board of Technology Foundation (DBT) has organised a number of events that range from citizen summits on the effects of climate change in Danish municipalities especially prone to flooding [26], to large-scale citizen meetings in various European countries about privacy and data protection in research projects.[4] However, beyond the aim of exploring citizens' political priorities and inform policy makers about alternatives

[2] Based on the concept developed by Putnam [39] and Gittell & Videl [20], Islam and Walkerden [27] describe bonding relationships as inward-looking and very close (family, relatives); bridging networks are more horizontal and outward-looking (friends, colleagues).

[3] The concept of community has been widely criticised as reductionist and promoting a collective noun which suggests unity whilst hiding many differences related, but not limited to, gender or socio-economic division. However, we see the use in this context as justified, as it refers to the general involvement of citizens living in a specific locality, rather than assuming a homogeneity of such local community.

[4] See, e.g., the Human Brain Project citizen meetings on privacy and data protection in research; http://www.tekno.dk/article/citizen-meetings-in-the-human-brain-project/?lang=en.

of action, the concept of citizen summits has more recently also been turned into a scientific research method, using instruments of quantitative and qualitative methodology to test theoretical models [14].

3.2. The Malta Citizen Summit

The CARISMAND Citizen Summit in Malta, which provided the data for this study, combined public information and public feedback-gathering with comprehensive quantitative and qualitative data collection, using different methods to explore different aspects of the research. On one hand, "culture" is understood as a construct which is linked to highly dynamic processes such as social and environmental changes, or media development, at both micro and macro levels, while it also plays an important role in shaping individual as well as collective identities. Therefore, an exploratory approach which seeks to incorporate both the destabilising ("cultural change") and the stabilising effects of culture ("cultural identity") best employs a qualitative methodology, using focus group discussions to elicit those shared narratives in which culture, as a process, is situated. We considered it particularly important to allow citizens to find their own descriptions of "culture", rather than providing them with pre-established, and thus potentially limiting, definitions.

On the other hand, the cognitive and emotional components related to disaster risk perception can be best measured by using quantitative methods, e.g., regarding the frequency and intensity of different types of perceived risk. Although so far predominantly tested via surveys, these quantitative measures were expected to provide a sound foundation for exploring the qualitative links to the more "fluid" cultural factors, which may shape both citizens' risk perception and behaviour in disaster situations.

4. Method

4.1. Participants

At a first stage, potential participants for the Citizen Summit were identified via a local research agency. This agency used an industry-standard 'FreeFind' approach to recruit participants and provide a baseline sample which reflected a wide range of socio-economic backgrounds and, at the same time, was representative of the Maltese population with respect to age and gender distribution. The final selection process applied specific recruitment criteria which aimed to maintain an even demographic distribution, whilst including three key aspects of disaster experience and disaster risk perception (see Table 1). These additional selection criteria were used to ensure a good mix of levels of experience for the focus group discussions. All presentations and discussions were held in Maltese, in order to avoid any language or education-related access restrictions for participation and allowing citizens to respond intuitively and discuss freely in their native tongue.

Table 1
Selection criteria: Risk perception and disaster experience.

	Answer = YES		
	Total	Female	Male
Experience of disasters: Have you, or a close friend or family member, ever experienced a disaster?	50.0%	48.0%	56.6%
Feel that living in a disaster area: Do you feel you are living in an area that is specifically prone to disasters?	38.0%	44.0%	32.1%
Know of vulnerable groups particularly exposed to disasters: Do you know of any other people in your area where you live who you think are particularly vulnerable or exposed to disaster?	48.1%	46.0%	49.1%

Gender and age differences in these results were found to be not statistically significant ($p > = 0.05$).

4.2. Procedure

In the first part of the event, we posed a total of 24 quantitative questions in four stages. The first stage included an introductory presentation of the CARISMAND project, and a first set of eleven questions collected some demographic and other basic participant information, measured the participants' disaster preparedness intentions, and asked for their disaster risk perception. Questions regarding risk perception were posed to the audience in slightly different ways in later stages, each time after providing additional information. In the next stage, videos and pictures of a local large-scale disaster scenario exercise[5] were presented, followed by another set of questions. This second set of five questions specifically asked for the participants' evaluation of such exercises, how well they feel informed about disaster preparedness, their intended behaviour in case of a high disaster risk and, again, their risk perception. Stage three consisted of a presentation focused on communication procedures in case of a disaster, followed by a third set of eight questions targeting the perceived usefulness of social media in all disaster phases which was followed by a presentation about current social media use in disaster management. The final set of six questions were presented after the discussion groups had been completed. These questions asked for the participants' risk perception with a specific focus on different types of hazards.

The participants' immediate responses to these questions were captured via an audience response system Clik-a-pad system with ppvote software (http://www.clikapad.com). After the event, these data were exported into a database and fully anonymised. All analyses were conducted with SPSS Version 24.0 and significance tests were run for all results.

In the second part of the summit, the participants (n = 108) were divided into ten focus groups of nine to eleven members, with an even gender split. Two groups consisted of people aged 18–24, four groups of people aged 24–44, and four groups of people aged 45+. This division into age groups aimed to allow participants to discuss amongst peers with similar life-experience. These discussions were recorded, fully transcribed, and the resulting Maltese transcripts were translated into English. In this process, all participant names and personal identifiers were removed to ensure anonymity. The translated transcripts were coded following a preliminary coding framework, which allowed an initial structuring of the collected data. This initial coding framework was based upon the ten general themes defined in the focus group discussion guidelines; then, in the coding process, a matrix was developed which listed a total of 179 individual codes. By filling this matrix with the results of all 10 discussion groups, clusters were identified, resulting in the recoding of all transcripts and, finally, reduction to specific processes and practices or constructions and interpretations. Then, the qualitative results were triangulated with the quantitative results in order to provide a balanced picture, add depth and increase the validity and utility of findings.

5. Results and discussion

5.1. Quantitative findings

The first part of this study focused particularly on the collection of quantitative data related to participants' disaster preparedness, disaster

[5] In August/September 2015 the Civil Protection Department Malta, in cooperation with the CPD Sicily and the Universities of Catania, Palermo and Malta, conducted a complex disaster exercise as part of the EU co-financed project SIMIT– Integrated System for Transboundary Italo-Maltese Civil Protection. The scenario setting was in Gozo, the second largest of the inhabited islands of the Maltese Archipelago, simulating a major earthquake (7.6 on the Richter scale, 120 km southwest of Malta, lasting 20 s), and it involved around 300 participants (members of the Civil Protection Department, Police, soldiers, medical staff etc.) as well as the general public. Based on the video material provided by the CPD Malta, a short film with several sequences was purpose-cut for the CARISMAND Citizen Summit.

Table 2
Disaster risk perception.

		Total		Female		Male	
		Mean	STD	Mean	STD	Mean	STD
RP1	I am worried about disasters in the area where I live.	2.93	1.115	3.17	1.141	2.71 *	1.071
RP2	When I think of disasters in my area, I feel concerned Question posed after showing videos of a large-scale disaster response exercise	3.45	1.019	3.59	1.041	3.28	1.026
RP3a	I think there is a high risk of natural disasters in my area in next 3 years.	2.62	0.883	2.67	0.715	2.53	0.952
RP3b	I think there is a high risk of man-made disasters in my area in next 3 years. Questions RP3a and RP3b posed after focus group discussions	3.28	0.986	3.25	0.943	3.25	0.997

Answers measured on a 5-point Likert scale with 1 = totally disagree, 5 = totally agree.
Results in this table marked with an asterisk (*) signify that the results between males and females are statistically significantly different ($p < 0.05$). There are no statistically significant differences between age groups.

risk perception and behaviour in disaster situations.

5.1.1. Disaster preparedness

Regarding disaster preparedness, participants expressed a strong lack of knowledge about the guidelines and procedures their local disaster management authorities were following, with 73% of respondents indicating that they know not a lot or nothing at all. In addition, they also indicated that they feel even less informed about what to do themselves in case of a disaster, i.e., 91% of respondents felt not informed or not informed at all about what to do in a disaster. Whilst the results of these two questions were only moderately correlated ($r_s = 0.409$, $p < 0.001$), there was a stronger relationship between respondents feeling informed, or not informed, by the authorities on what to do, and feeling personally prepared for a disaster in their area ($r_s = 0.510$, $p < 0.001$). 60% of participants expressed their feelings of not being prepared or not being prepared at all, whereas only 8% felt prepared or well prepared. At the same time though, participants expressed considerable interest in information about disaster preparedness, with a large majority (85%) indicating they were quite or strongly interested in information about disaster preparedness. Additionally, 70% of participants indicated strong intentions to prepare for disasters (prepare quite a lot or a lot); however, there was only a weak correlation ($r_s = 0.252$, $p < 0.001$) between respondents' preparedness intentions and their feelings of being prepared, and no significant correlations between feeling prepared or intending to prepare and their interest in information about how to prepare themselves for disasters.

5.1.2. Disaster risk perception

Disaster risk perceptions were targeted at different points during the Citizen Summit in order to measure the potential effects of information and visual cues. Risk perceptions were measured at the start of the event (question RP1 in Table 2), after participants watched a video of a recent local disaster simulation exercise (question RP2 in Table 2), and after the focus group discussions (questions RP3a & RP3b in Table 2). In order to achieve adequate internal consistency but without using exactly the same wording, these questions are based on the 5-item measure developed by Kellens et al. [31] with a Cronbach's Alpha of 0.80 for the perception of flood risk, adapted to disasters in general. Authors in the field suggest that providing information through simulation exercises or techniques such as virtual reality has a stronger impact on citizens risk perception and willingness to involve in protective behaviour than providing information through brochures or other traditional ways of informing. Namely, simulation exercises and virtual reality enable people to have a more detailed and personal experience of a disaster, to imagine their negative consequences (including emotional ones), which is believed to increase the number of individual preparedness activities [18,41].

The results indeed revealed such effects: Before showing the video, only female participants were more worried than unworried about disasters in the area where they live (see responses to RP1 in Table 2), whereas after viewing the video both female and male participants agreed more than disagreed that they were concerned about disasters in their area (see responses to RP2 in Table 2). However, this increased concern coincided with 87% of participants finding disaster simulations as shown in the video important or very important, which suggests that being aware of simulation exercises may increase the perceived risk of disasters but, at the same time, this appears to be seen as necessary and important.

After the focus group discussions, participants were asked again for their risk perception, this time with a specific focus on the near to medium future (the next three years) and differentiating between the risks of natural and man-made disasters. The results demonstrate that participants perceive a significant difference[6] between the risk of natural disasters and the risk of man-made disasters (see also replies to RP3a and RP3b in Table 2). It is interesting that participants make this distinction despite during the focus group discussions having made very clear their awareness of the blurred distinction among these two categories. Whereas more participants agreed than disagreed that there is a high risk of man-made disasters, for natural disasters more participants disagreed than agreed that there would be a high risk in their area in the next 3 years, which concurs with "objective" categorisations of Malta as a low-risk country, in particular regarding natural hazards (see World Risk Report 2016). Additionally, responses of male and female participants shifted even closer together (compared to responses to Q1.7 and Q2.2) and are, in particular for man-made disasters, practically identical. This result suggests that providing more information and encouraging discussion may reduce the difference in risk perception between men and women in Malta, which may, ultimately, reduce female vulnerability due to gender roles. Previous research has shown that gender roles affect vulnerability, in particular due to a lack of knowledge about adequate behaviour in disaster situations [46]. For example, in Sweden, that is considered as more gender egalitarian country, women do not show higher risk perception, i.e., women do not show a higher level of vulnerability [36]. Regarding Malta, the European Gender Equality Index 2015 shows signs of progress, but gender gaps in education, employment, care and household activities remain significant [17].

5.1.3. Disaster response & social media use

Regarding behaviour in disaster situations, 54% of all participants indicated that in case there was a high risk of a disaster happening soon and they would feel this disaster may cause serious harm, the first thing they would do is call their family and friends; only 32% would first call the emergency services. Being asked for the second thing they would do, 42% would call the emergency services, 30% would call their family and friends, and 10% would turn on the television or radio, with no statistically significant differences between female and male responses or between age groups. Although 92% of the participants stated that

[6] t(degrees of freedom) = t-value, $p < 0.001$.

Table 3
Social media use in disasters.

	Total	
In the case of an ongoing disaster, how likely are you to use social media to…	Mean	STD
Inform oneself about the disaster	4.30	0.954
Submit information about risks/disasters to local authorities	3.19	1.324
Warn or inform other social media users	4.11	1.070
Warn or inform family and friends	3.86	1.195
Stay in contact with others	3.97	1.049
Provide help to others	3.73	1.139

Answers measured on a 5-point Likert scale with 1 = very unlikely, 5 = very likely.
There are no statistically significant differences between female and male responses, or between age groups.

they do use social media in their everyday lives, in an acute emergency situation it appears that social media usage is not the preferred immediate response. Only 8% responded they would use social media to inform family or friends, submit information to authorities or gather more information for themselves as their first priority; 11% responded it would be their second priority.

However, this picture changes in the case of an ongoing disaster, where the use of social media was indicated as being likely or very likely. Only the likelihood of submitting information to local authorities through social media was considerably lower than all other intended usages, although 47% of respondents still indicated it as likely or very likely that they would use social media to submit information about disasters to the authorities, whilst 35% responded that this would be unlikely or very unlikely.(Table 3)

These results suggest that the development of social media applications in disaster management should target multi-functional solutions, which allow different information flows, i.e., authorities to citizens, citizens to other citizens, but also citizens to authorities.

5.2. Qualitative findings

The second part of this research examined in more depth disaster preparedness, disaster risk perception and behaviour in disaster situations, using focus group discussions to allow participants to express their individual attitudes and experiences, but also to encourage and observe specific group dynamics with a particular focus on the potential influence of local cultures and cultural factors.

5.2.1. Disaster preparedness: Dynamics between history and lifestyle

At the start of the discussion, a common reaction across all groups was to perceive disaster preparedness predominantly as the responsibility of governments, rather than reflecting upon personal preparation measures. However, as the discussion progressed, the emphasis in all groups shifted noticeably from a perceived duty of public authorities to a more personal responsibility, awareness and "common sense". The link between state responsibility and citizen responsibility was established through the dynamic between provision of, and need for, information about possible preparedness measures. In this context, many participants outlined that active information-gathering from authorities would be in itself an integral part of preparedness measures. Others went a step further and suggested several activities such as improving preparedness through discussions with their families (e.g., about meeting points and means of communication in case of a disaster), planning to share resources between neighbours (e.g., sharing pumps in case of flooded basements), the community organising meetings to discuss preparative measures, learning or refreshing First Aid skills, and preparing ready-packed "emergency bags".

However, a number of participants linked preparedness, or lack thereof, specifically to local attitudes: *"Malta is an island […] and we are surrounded by so many beautiful things that we don't think of certain things [disasters]"* (G9/P8[7]); *"we are so distracted in Malta* (G9/P2); *"as a nation […] we never think of negative things"* (G7/P5); or *"Malta is so small that the probability of an earthquake or these things hitting us is very remote. This is why we're a nation that doesn't worry"* (G9/P3). Others explained a lack of preparedness by linking to perceived cultural traits – *"we do not prepare ourselves well, but Malta and the Maltese are very resourceful, and we get through disasters like in the wars[8] in the past"* (G9/P9) – or the loss of awareness through time:

> *I look at the history. Besides the earthquakes which have happened in Sicily which affected Malta because of the stone and Mdina[9] which is built on clay, the prehistoric temples that go back 7000 years at least […] are some of the first free-standing structures in the world which were earthquake-proof. It is very interesting that, in those days, they were preparing for it."* (G5/P2)

Most participants linked preparedness activities to actual experience, as one participant who lived in an area of Malta that frequently floods after heavy rain, explained: *"These are factors which you need to take into consideration, like a lifestyle"* (G5/P2).

5.2.2. Disaster risk perceptions: A safe island?

In the context of disaster risk perception, two main themes emerged during the group discussions: the relationship between risk perception and different types or characteristics of disasters, and the close link to experience and knowledge: *"If you feel that the authorities have informed you of what to do in such cases […] your comfort level I think, to an extent, rises"* (G1/P1). Beyond linking risk perception to the level of information provided by the authorities, participants particularly outlined the importance of specific local experience – *"everyone is used to it [heatwaves]"* (G4/P2) – or lack thereof: *"If we had the rain that England has, Malta would drown"* (G6/P2), and how these adaptive behaviours have become internalised: *"It becomes part of you"* (G3/P9). The importance of local knowledge and local experience, in a form of different coping strategies and mechanisms which are embedded in people's behaviour, have been recognised as an important factor that can support disaster risk reduction, but also disaster preparedness [3,6,7]. However, it was also outlined that experience can have different effects on different people. In one group, the moderator probed these effects by reminding participants of their experience of the 1972 earthquake in Malta. In response, several participants elaborated that the fact nothing serious happened then – and nothing more serious has happened since then to date – makes them feel more secure, or that in their experience as a child *"it was an adventure"* (G8/P8).

Others again linked their feelings of safety to perceived architectural characteristics – *"in Malta the buildings are strong"* (G8/P7) – though these same facts were seen by others as increasing rather than decreasing risk: *"The way they're building these days [in Malta] scares me"* (G8/P8). At the same time, there were also participants who described a negative long-term effect of previous experience: *"I get scared now. When I feel tremors, I'm scared"* (G8/P11). These statements point at the fact that, ultimately, the effect of experience on disaster risk perception can be rather different depending on the lapse of time, actual or perceived seriousness, personal life situation and personal traits, which supports findings from previous studies (e.g., [4,43,45]). The same applies to the effect of experienced disaster frequency, where some

[7] Group 9, participant number 8. Groups 1 and 2 consisted of participants aged 18–25 years; groups 3–6 consisted of participants ages 26–44 years; groups 7–10 consisted of participants aged 45 years and older.

[8] During the discussion session, several groups brought up the vast destruction in the areas around the Grand Harbour, which suffered intensive bombing during the Second World War and has become part of Maltese collective memory.

[9] Medieval city, founded by the Phoenicians around 800 BCE, in the centre of Malta. The city, and in particular its cathedral, suffered severe damage during the 1693 Sicily earthquake (7.4 on the Richter Scale).

participants outlined they would worry more if they experienced disasters more often, and others explained that a higher disaster frequency would not make them worry more but prepare more.

5.2.3. Behaviours: Every skill helps

When asked for their immediate behaviour in disaster situations, some participants' first reaction was to "keep calm" but, more often, to "keep others calm" and ensure the safety of their families. The response given most often was that they would offer voluntary help to the Civil Protection Department, NGO's or neighbours in need: *"Help and ask"* (G4/P4). Generally, the participants' attitude was that in such a situation everyone can help by using their personal or professional skills, and not only those who are trained in medical aid: *"I think everyone could use their skill set"* (G3/P10), *"a person who is like a builder"* (G3/P3), *"perhaps an electrician"* (G3/P5), *"if someone is able to drive they can pick up a group of people and take them to hospital"* (G3/P10), or *"even simply leadership – in all that chaos you could be the person who does not panic and use that skill to help your family and those around you. That skill helps"* (G3/P1). This willingness of Maltese participants to provide aid by using everyday capabilities and skills even blurred the boundary between public and private spheres: *"Helpful actions, for example give someone a lift to work if something happened to their car; if the kitchen is flooded and they can't use their kitchen, maybe they can come and cook at your house"* (G4/P2). At the same time, this behaviour was reflected upon as a specific cultural trait:

> *"I think deep down, the Maltese in times of need, everyone would [help]. It would be because we were brought up like this."* (G3/P7)

> *"I think in Malta there is a culture to help – we are ready to help. We give even when we don't have. There is solidarity."* (G5/P10)

> *"I think, here in Malta, thankfully our culture is to take care of each other."* (G7/P7)

> *"That's one of the virtues of the Maltese people: No matter how much they argue – they help."* (G10/P3)

5.2.4. Cultural groups: Vulnerable…but not only

Defining culture, cultural groups, or cultural factors will always carry an inherent risk of producing normativity, difference, distinction, and – in the specific context of disasters – vulnerability. Therefore, rather than presenting pre-defined concepts to the focus group participants, the discussion moderators were briefed to allow participants to find their own definitions but probe beyond the "obvious" cultural stereotypes and socio-demographic factors.

As expected, all participants initially identified four main groups as particularly vulnerable during disasters: the elderly, children, people with physical or mental disabilities, and people who are ill or have had recent injuries. However, when probed about other factors that may play a role in disasters, participants mentioned elderly people who overestimate their physical abilities: *"I know two people who fainted because of the heat. Not because they didn't know – because they did – but because they were hard-headed. One of them was elderly but thought he was still 18. He fainted, remained poorly and died after a month"* (G9/P10). This finding is consistent with research in Germany where "active pensioners" put their lives at risk during the 2003 heatwave [8] because they would not like to consider themselves as "old", or they rejected technical devices, such as a personal sensor system, to monitor ambient temperature and detect potentially dangerous situations. However, some of the older participants also pointed out that *"those who are retired but still strong"* (G8/P7) might join volunteer groups, learn more about disaster response and become active helpers.

A sub-group of children, besides very young children, was thought to be particularly vulnerable – those with parents working full-time and who may, therefore, be alone at home and without support and guidance in case of a disaster. At the same time, though, children were seen as not only generally vulnerable but also as having important skills their parents may not have. These may be more up-to-date First Aid skills due to courses and emergency drills at school– but also language skills: *"Children have to go to clinics or employment or tax agencies with their parents because they can speak English or Maltese and their parents cannot"* (G9/P5). In such cases, children were seen to become, potentially, key communicators in disaster situations.

Another group identified as potentially more vulnerable during disasters were foreigners and tourists. In particular, it was felt that these may lack the required local knowledge of specific local hazards, that they may not understand alerts because of not speaking the local language, and that a potential lack of social networks in case of a disaster may leave them without support in a disaster situation: *"They don't have family, they don't have immediate neighbours who are friends"* (G8/P7). Attitudes towards the role of local communities oscillated between a perceived weakness due to low social cohesion in areas with a high turnover of people, including but not limited to a high flow of tourists and expatriates, and a perceived strength of tightly knit neighbourhoods with strong social cohesion. Although, initially, many participants used general stereotypes, i.e., urban anonymity in multi-storey apartment blocks vs strong sense of community in rural villages, the discussions also revealed more pointed aspects, in particular related to the strengths and weaknesses of multicultural neighbourhoods:

> *"Maybe it's a weakness: I can mention St Julian's[10]: Obviously there are Maltese but there are also a lot of foreigners. Maybe it's not a weakness, because it can work both ways, as they bring their perception from where they live so they can help out, maybe they are prone to these situations more than us. But then again obviously you know the way it is: Maltese people stick to themselves, and foreigners also, so that might be a weakness in that respect. So, there'll be a lack of community as a result."* (G2/P7)

This participant, whilst ultimately defaulting to stereotypes, reflects upon the possibility that people with different cultural backgrounds may also contribute by making available a wider range of experiences which could be helpful in disaster preparedness and response.

Despite the fact that there is a perceived loss of community cohesion in some areas, the large majority of participants related to community cohesion as a "tradition" – *"in Malta, traditionally we are very close to one another, as we are very small, too"* (G3/P10) – and as a cultural aspect which has persisted over time: *"I think the Maltese community is divided in many things that, at the end of the day, become irrelevant. Be it politics, football, whatever, the village feast, but time and time again, even when financial help is needed, deep down the Maltese community is ready to help those around it"* (G7/P3). Here, the interesting result is not that community cohesion is seen as a cultural value, but that this value is, reflectively, being "operationalised" by the participants for the specific purpose of disaster recovery and resilience.

6. Conclusions

The quantitative data revealed that most participants of the Malta Citizen Summit feel they have a strong lack of knowledge about what to do in case of a disaster. This result reflects, partially, the lack of knowledge expressed by some participants in the focus group discussions who ascribed responsibility for disaster preparedness to the authorities and saw themselves as passive receivers of preparedness measures. However, most participants in the discussions viewed preparedness as a shared responsibility between authorities and citizens, through active information-sharing from both sides. This qualitative result is consistent with the quantitative data which showed that participants expressed a very strong interest in learning how to prepare for and act during disasters, and is also supported by the strong interest in

[10] Maltese town with a very high concentration of tourism.

disaster simulation exercises displayed by participants. Although the low knowledge of general emergency procedures in case of a disaster appears to be linked with participants' feelings of poor personal disaster preparedness, these feelings are only weakly connected with intentions to prepare for future events. Similarly, perceived disaster risks show only a weak link to preparedness intentions; this "disconnection" confirms the results from other studies which found no evidence for a sustainable relationship between disaster risk perception and adaptive behaviours.

The focus group discussions revealed a number of perceived cultural traits that may play a role in disaster preparedness, i.e., on the one hand, a behavioural inertia the participants characterised as "Maltese light-heartedness" due to living in pleasant surroundings and, on the other hand, a reliance on "Maltese resourcefulness" in times of need. Both of these factors would typically be characterised as personal rather than cultural traits, but perceiving them as the latter turns them into values and, as such, powerful tools which can work in favour, or against, a motivation to prepare.

The results highlighted some cultural aspects of disaster response. The quantitative data revealed that the respondents' intended immediate reaction to a disaster situation would be to ensure their families' and friends' safety by calling them first rather than contacting the emergency services. This result can be interpreted as evidence of the strong family value in Maltese society, which was also confirmed by the findings in the focus groups. Furthermore, the qualitative data showed that after this first response the focus group participants would see themselves as actively assisting and offering voluntary help to disaster professionals, and they strongly expressed the opinion that in such situations everyone could assist by using their individual skills. Generally, they revealed a strong sense of solidarity with others and an explicit hands-on approach, construing both these traits as a specific Maltese "culture to help" which, in connection with the aforementioned "Maltese resourcefulness", ties into a moral economy of mutual assistance during, but also beyond, times of need. At the same time, the quantitative results indicate social media to be very likely to be used in case of an ongoing disaster for a variety of purposes, in particular information-sharing. Bringing these findings together suggests that it may be an effective tool in disaster management to use or design social media, including mobile phone apps, for purposes that go beyond merely informing about preparedness measures, releasing hazards warnings or providing behavioural advice in disaster situations. Instead, apps or platforms could be designed that also facilitate the sharing of skills between citizens on a voluntary basis. Additionally, the quantitative data revealed no gender difference in social media usage relating to disasters, which suggests using social media as a means of providing disaster and risk-related information may help to reduce a possible gender gap in appropriate disaster preparedness.

The focus group participants identified a number of vulnerable groups, identifying factors beyond age, social, economic and physical characteristics, such as health status, specific everyday routines, local knowledge, and language. Under the guidance of discussion moderators who facilitated this focus on cultural rather than socio-economic factors, they were also able to develop ideas of active citizenship amongst vulnerable groups, e.g., senior volunteering, kids-helping-kids activities, children becoming role models for parents, or cross-cultural exchange of disaster experience between "foreigners" and "locals".

To summarise, the results of this study suggest that a disaster management which seeks to take "culture/s" into consideration may follow two parallel approaches: On the one hand, identifying and addressing not only the vulnerabilities but also the capabilities of specific *cultural groups*; on the other hand, identifying and using *cultural factors* to improve citizens' disaster preparedness and disaster response. As the example of Malta demonstrates, living in a "low-hazard" country does not mean that people in such locations are not interested in such measures, but transforming this interest into actual preparedness behaviour may require communication strategies, training materials and behavioural guidelines that go beyond targeting risk awareness. Instead, using a "toolkit" which consists of those shared values, traditions, worldviews, local everyday experiences or collective memories that are culturally significant to specific groups or populations can be expected to be more successful in fostering such transformation efforts.

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